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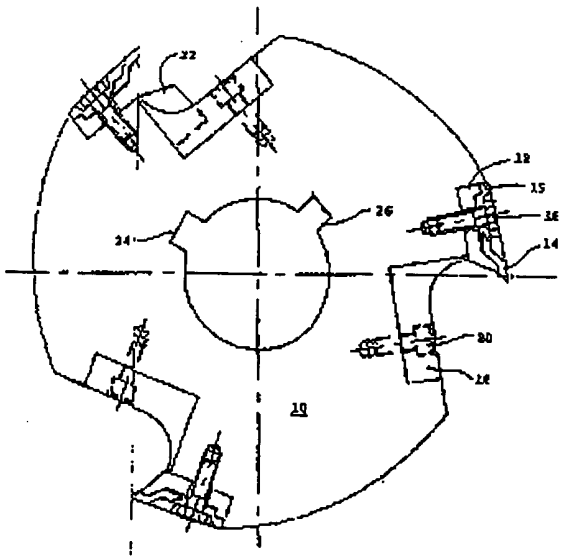
(12) **Patent:**

(11) **CA 2079145**

(54) CUTTER BLADE ARRANGEMENT

(54) ARRANGEMENT DE LAME D'OUTIL

Representative Drawing:



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ABSTRACT:

For the purpose of working logs to timber form while simultaneously removing of wood chips, there is used cutting blade assemblies which include at least one cutting blade (10) that is provided at its periphery with one (14) or more knives adjacent a recess or gullet in the cutting blade, this recess or gullet forming a space for accommodating the chips removed by the knife
(14).

The knife is attached separately to the cutting blade by means of a bolt (16) which passes through the knife (14) or a knife holder (12, 15) and is screwed into the cutting blade (10). A separate wear insert (18) is replaceably attached to the cutting blade in the recess or gullet, so as to enable the insert to be replaced when subjected to a given amount of wear.

CLAIMS: Show all claims

*** Note: Data on abstracts and claims is shown in the official language in which it was submitted.

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Patent Document Number 2079145 :
CUTTER BLADE ARRANGEMENT

ARRANGEMENT DE LAME D'OUTIL

CLAIMS:

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THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:

1. A cutting blade arrangement for cutting logs to timber form, wherein the cutting blade includes at least one knife which is mounted at the periphery of the cutting blade adjacent a gullet formed in the cutting blade and functioning to accommodate the chips or like material removed by the knife, characterized in that the knife is secured separately by means of a screw-threaded bolt which passes through the knife or a knife holder in the cutting blade; and in that the gullet has mounted therein a separate wear insert which is removably connected to the cutting blade.

2. A cutting blade arrangement according to Claim 1, characterized in that the knife holder includes a cassette for clamping the knife between the cassette parts.

3. A cutting blade arrangement according to Claim 1 or

2, characterized in that the knife consists of an indexable cutter.

4. A cutting blade arrangement according any one of to
Claims 1 to 3, characterized in that the knife or the knife holder and the wear

insert are secured to the cutting blade with the aid of countersunk bolts so as to provide smooth outer surfaces on said elements.

5. A cutting blade arrangement according to any one of Claims 1 to 4, characterized in that a chip-parting knife is mounted in the chip-accommodating gullet to break-up or divide the chip or shaving removed by the knife.

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6. A cutting blade arrangement according to any one of Claims 1 to 5, characterized in that the cutting blade includes more than one knife, preferably three knives; and in that said knives are distributed uniformly around the blade periphery.

7. A cutting- blade arrangement according to Claim 5, characterized in that the parting knife is held firmly to the cutting blade by the wear insert.

8. A cutting blade arrangement according to any one of Claims 1 to 7, characterized in that the knife, or each knife, and the knife holder, projects forwardly over one end of the wear insert.

9. A cutting blade arrangement according to any one of Claims 1 to 8, characterized in that a plurality of cutting blades are disposed on a common shaft with the aid of key-ways, wherein each cutting blade has at least one key-way which is offset in relation to at least one key-way in adjacent cutting blades around the circumference of the shaft hole.

10. A cutting blade arrangement according to Claim 9, characterized in that each cutting blade has at least two key-ways which are displaced or offset relative to one another around the circumference of the shaft hole.

11. A cutting blade arrangement for cutting logs to timber form, wherein the cutting blade includes at least one knife which is mounted at the periphery of the cutting blade adjacent a gullet formed in the cutting blade and functioning to accommodate the chips or like material removed by the knife, characterized in that the knife is secured separately by means of a screw-threaded

7 bolt which passes through the knife or a knife holder in the cutting blade; and in that the knife or the knife holder are secured to the cutting blade with the aid of countersunk bolts so as to provide smooth outer surfaces.

12. A cutting blade arrangement according to Claim 11 characterized in that the gullet has mounted therein a separate wear insert which is removably connected to the cutting blade.

13. A cutting blade arrangement according to Claim 12 characterized in that the separate wear insert is secured to the cutting blade with the aid of at least one countersunk bolt so as to a provide smooth outer surface on said wear insert.

14. In a cutting blade for cutting logs to timber form, wherein the cutting blade

includes an outer periphery having a first recess formed therein, at least one knife means mounted in the first recess in the periphery of the cutting blade, a second recess in the periphery of the cutting blade adjacent the first recess formed therein which functions to accommodate chips removed by the knife means, the improvement comprising, the knife means being secured to the cutting blade by a screwthreaded bolt means which passes through the knife means and into the cutting blade, a separate wear insert mounted with the second recess, said wear insert being removably connected to the cutting blade, each of said knife means and said wear insert having outer surfaces, said wear insert being secured to the cutting blade by second bolt means which extends through said wear insert and into the cutting blade, and each of said knife means and said wear insert having outer surfaces with a

8 countersunk opening for said bolt means so as to provide smooth outer surfaces on said knife means and said wear insert whereby said bolt means and said second bolt means are substantially flush with said outer surfaces of said knife means and said wear insert, respectively.

15. The cutting blade according to claim 14, characterized in that the knife means includes a knife and a cassette, each cassette having inner and outer parts for clamping the knife therebetween.

16. The cutting blade according to claim 15, characterized in that the knife includes spaced cutting edges, said knife being indexable within said cassette.

17. In a cutting blade for cutting logs to timber form, wherein the cutting blade includes an outer periphery having a first recess formed therein, a knife means mounted in the first recess in the periphery of the cutting blade, a second recess in the periphery of the cutting blade adjacent the first recess formed therein which functions to accommodate chips removed by the knife means, the improvement comprising, said knife means including a knife and a cassette, each cassette having inner and outer parts for clamping said knife therebetween, said knife means being secured to the cutting blade by a screw-threaded bolt means which passes through the knife means, a separate wear insert mounted with the second recess, said wear insert being removably connected to the cutting blade, each of said knife means and said wear insert having outer surfaces, said wear insert being secured to the cutting blade by second bolt means which extends through said wear insert, and each of said knife means and said wear insert having outer surfaces with a countersunk opening

9 for said bolt means so as to provide smooth outer surfaces on said knife means and said wear inset whereby said bolt means and said second bolt means are substantially flush with said outer surfaces of said knife means and said wear insert, respectively.

18. The cutting blade according to claim 17 characterized in that a chip-parting knife is mounted in said second recess to divide the chips removed by the knife means.

19. The cutting blade according to claim 18 characterized in that the chip-parting knife is held firmly to the cutting blade by the wear insert.

20. The cutting blade according to claim 18 characterized in that the knife means projects forward over one end of the wear insert.

21. The cutting blade according to claim 20, characterized in that a plurality of cutting blades are disposed on a common shaft with the aid of the key-ways, formed in the cutting blades wherein each cutting blade has at least one key-way which is offset in relation to the key-way in adjacent cutting blades around the circumference of a shaft hole.

22. The cutting blade according to claim 21, characterized in that each cutting blade has at least two key-ways which are offset relative to one another around the circumference of the shaft hole.

23. A knife holding assembly for holding a knife on a cutter blade, the cutter blade being characterised as the type having a central drive shaft opening, a disc

10 shaped body having an outer wood facing periphery and a recess in said periphery, said knife holding assembly comprising: a knife to remove chips from logs during log processing, said knife having two cutting edges, one each on opposite sides of said knife, an upper part and a bottom. part, the upper part being sized and shaped for clamping said knife against said bottom part with one cutting edge of said knife projecting beyond the wood facing periphery of the cutter blade; and a first fastener to releasable secure said knife between the upper part and the bottom part, wherein said first fastener may be released to allow said knife to be repositioned or replaced to present a fresh cutting edge.

24. The knife holding assembly of claim 23 wherein said cutter blade body further includes a chip receiving gullet adjacent to said recess and said assembly further includes a replaceable wear insert located in said chip receiving gullet.

25. The knife holding assembly of claim 24 wherein the the replaceable wear insert is drawn up to said bottom part of the knife holding assembly.

26. The knife holding assembly of claim 25 wherein the the replaceable wear insert is drawn up to said bottom part of the knife holding assembly at an end of said bottom part which faces towards said knife.

27. The knife holding assembly of claim 24, 25 or 26 wherein said replaceable wear insert is secured to said cutter blade body in said chip receiving gullet by a

11 second fastener.

28. The knife holding assembly of claim 27 wherein said second fastener is a threaded fastener, and said replaceable wear insert includes a second opening sized and shaped to accommodate said threaded fastener, so that a head of said second fastener is countersunk into said wear insert when said wear insert is installed in said chip receiving gullet on said cutter blade body.

29. The knife holding assembly of claim 28 wherein said threaded second fastener is a bolt.

30. The knife holding assembly of claims 23, 24, 25, 26 or 27 wherein said first fastener is a threaded fastener.

31. The knife holding assembly of claim 23, 24, 25, 26 or 27 wherein said upper part has a smooth outer surface.

32. The knife holding assembly of claim 31 wherein said upper piece includes a countersunk bore sized and shaped to accommodate a head of said first fastener.

33. The knife holding assembly of claim 32 wherein said first fastener is a bolt.

34. The knife holding assembly of claim 23, 24, 25, 26,

27, 28 or 29 wherein said first fastener extends through said filler piece into said cutter blade.

35. The knife holding assembly of claim 23, 24, 25, 26,

27, 28 or 29 wherein said knife holding assembly further includes a chip parting knife.

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36. The knife holding assembly of claim 35 wherein the knife holding assembly further includes a chip parting knife mounted on said wear insert.

37. A cutter blade arrangement for cutting logs said cutter blade arrangement comprising: at least one cutter blade body which includes at least one knife holding assembly for holding a cutting edge of a knife in a position extending beyond a periphery of the cutter blade body; each of said knife holder assemblies having: a cassette comprised of an upper part and a bottom part; an indexable knife having two of said cutting edges one each on opposite sides of said knife, wherein said knife may be alternately positioned with first one edge and then the second edge projecting beyond the periphery of the cutter blade body; and a first fastener to releasably retain said indexable knife in said cassette.

38. The cutter blade arrangement of claim 37 wherein said cutter blade body includes a chip receiving gullet and said knife holding assembly further includes a replaceable wear insert releasably fastened in chip receiving gullet.

39. The cutter blade arrangement of claim 38 wherein said knife holding assembly projects forwardly over one edge of the replaceable wear insert.

40. The cutter blade arrangement of claim 38 wherein said replaceable wear insert is drawn up to said bottom part of the knife holding assembly.

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41. The knife holding assembly of claim 38 wherein the the replaceable wear

insert is drawn up to said bottom part of the knife holding assembly at an end of said bottom part which faces towards said knife.

42. The cutter blade arrangement of claims 37 to 41 wherein said replaceable wear insert is secured in said gullet to said cutter blade by a second fastener.

43. The cutter blade arrangement of claim 42 wherein said second fastener is a threaded fastener, and saic replaceable wear insert includes a second opening sizes and shaped to accommodate said threaded fastener, so that a head of said second fastener is countersunk into said wear insert when said wear insert is installed on said cutter disc blade body.

44. The cutter blade arrangement of claim 43 wherein said threaded second fastener is in the form of a bolt.

45. The cutter blade arrangement of claim 37 to 42 wherein said first fastener is a threaded fastener.

46. The cutter blade arrangement of claim 37 to 42 wherein said upper part has an outer surface which is generally flush to reduce wear during use.

47. The cutter blade arrangement of claim 46 wherein said upper part includes a first opening sized and shaped to accommodate a head of said first fastener.

48. The cutter blade arrangement of claim 47 wherein said first fastener is a bolt.

49. The cutter blade arrangement of claim 37 to 42

14 wherein said first fastener extends through said filler piece into said cutter blade.

50. The cutter blade arrangement of claim 37 to 42 wherein said knife holding assembly further includes a chip parting knife.

51. The cutter blade arrangement of claim 50 wherein the knife holding assembly further includes a chip parting knife mounted on said wear insert.

52. The cutter blade arrangement of claim 37 wherein said disc shaped body of said cutter blade includes a central shaft receiving opening having at least one key way for non rotationally affixing each cutter blade body to a drive shaft.

53. A chipping cutter head for removing chips from logs during log processing, said chipping cutter head comprising: a plurality of cutter blades mounted side by side on a common drive shaft, each of said cutter blades including at least one key way for rotationally securing said cutter blades to said shaft and each cutter blade being rotationally offset from one another to facilitate the division of cutting about a periphery of said cutting head; at least one knife holding assembly for each cutter blade, each of said knife holder assemblies further comprising: a filler piece for fitting into a recess formed on said cutter blade; an upper piece for fitting against said filler piece at least: at one end; a first fastener

to secure the upper piece onto the

15 filler piece; and a knife having two cutting edges one each on opposite sides of a knife body, said knife body being sized and shaped to be securely clamped between said filler piece and said upper piece with one of said cutting edges projecting beyond the periphery of said cutter blade, wherein said first fastener may be released to allow a fresh cutting edge to be presented from said knife holding assembly.

54. A chipping cutter head as claimed in claim 53 wherein said knife holding assembly further includes a replaceable wear insert located in a chip receiving gullet on said cutter blade body.

55. A chipping cutter head as claimed in claim 53 to 54 wherein said replaceable wear insert is secured to said cutter blade by a second fastener.

56. The cutter blade arrangement of claim 55 wherein said knife holding assembly projects forwardly over one edge of the replaceable wear insert.

57. The cutter blade arrangement of claim 55 wherein said replaceable wear insert is drawn up to said filler piece of the knife holding assembly.

58. The knife holding assembly of claim 57 wherein the the replaceable wear insert is drawn up to said filler piece of the knife holding assembly at an end of said filler piece which faces towards said knife.

59. A chipping cutter head as claimed in claim 55 wherein said second fastener is threaded fastener, and

16 said replaceable wear insert includes a second opening sized and shaped to accommodate said threaded fastener, so that a head of said second fastener is countersunk into said wear insert when said wear insert is installed on said cutter disc to prevent wear of said threaded second fastener during use.

60. A chipping cutter head as claimed in claim 59 wherein said threaded second fastener is in the form of a bolt.

61. A chipping cutter head as claimed in claim 53 to 60 wherein said first fastener is a threaded fastener.

62. A chipping cutter head as claimed in claim 53 to 60 wherein said upper piece has an outer surface which is generally flush to reduce wear during use.

63. A chipping cutter head as claimed in claim 53 to 60 wherein said upper piece includes a first opening sized and shaped to accommodate a head of said first fastener.

64. A chipping cutter head as claimed in claim 63 wherein said first fastener is a bolt.

65. A chipping cutter head as claimed in claim 53 to 60 wherein said first

fastener extends through said filler piece into said cutter blade.

66. A chipping cutter head as claimed in claim 54 to 60 wherein said knife holding assembly further includes a chip parting knife.

67. A chipping cutter head as claimed in claim 54 to 60 wherein the knife holding assembly further includes a

17 chip parting knife mounted on said wear insert.

68. A chipping cutter head as claimed in claim 53 to 60 wherein each of said cutter blade includes at least one key way for non rotationally affixing the cutter blade to a shaft.

69. A chipping cutter head as claimed in claim 53 to 60 wherein each of said cutter blades includes at least two offset key ways, to permit adjacent cutter blades to be rotationally offset to one another when non rotationally fixed to said shaft.

70. A chipping cutter head as claimed in claim 69 wherein each cutter blade includes three knife holding assemblies and associated wear inserts positioned about the periphery of each of said cutter blades.

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ABSTRACT

For the purpose of working logs to timber form while simultaneously removing of wood chips, there is used cutting blade assemblies which include at least one cutting blade (10) that is provided at its periphery with one (14) or more knives adjacent a recess or gullet in the cutting blade, this recess or gullet forming a space for accommodating the chips removed by the knife (14).

The knife is attached separately to the cutting blade by means of a bolt (16) which passes through the knife (14) or a knife holder (12, 15) and is screwed into the cutting blade (10).

A separate wear insert (18) is replaceably attached to the cutting blade in the recess or gullet, so as to enable the insert to be replaced when subjected to a given amount of wear.